

## Blended Portland Cement (Portland-Pozzolan Cement, Slag-Modified Portland Cement, Portland-Limestone Cement)

### Portland Blast-Furnace Slag Cement, Type 1S(##)

| <u>Supplier</u>        | <u>Source</u>  |
|------------------------|----------------|
| Buzzi Unicem USA, Inc. | New Orleans LA |

### Portland-Limestone Cement, Type 1L(##)

| <u>Supplier</u>                            | <u>Source</u>     |
|--|-------------------|
| Buzzi Unicem USA, Inc.                     | Cape Girardeau MO |
| Continental Cement Company                 | Buffalo IA        |
|  | Hannibal MO       |
| Holcim (US) Inc. (a LafargeHolcim Company) | Bloomsdale MO     |

### Portland-Pozzolan Cement, Type 1P(##)

| <u>Supplier</u> | <u>Source</u> |
|-----------------|---------------|
| None Approved   |               |

Type 1P(##) identifies a pozzolan modified cement containing ##% pozzolan by weight. The absolute maximum amount of pozzolan allowed in Type 1P will be 20% and would be identified as Type 1P(20).

Type 1S(##) identifies a slag modified cement containing ##% slag by weight. The absolute maximum amount of blast furnace slag allowed in Type 1S will be 25% and would be identified as Type 1S(25)

Type 1L(##) identifies a limestone modified cement containing ##% limestone by weight. Portland-limestone cement shall be a hydraulic cement in which the limestone content is more than 5% but less than or equal to 15% by mass of the blended cement.

Method of Documentation of Acceptance:

## **Blended Portland Cement (Portland-Pozzolan Cement, Slag-Modified Portland Cement, Portland-Limestone Cement)**

By the manufacturer's certified shipping notice in accordance with the attached agreement.

The inspector shall note on the Concrete Plant Inspector's Daily Report the name of the manufacturer/supplier, source location and the type cement.

Method of Approval:

### **DESTINATION SAMPLING AND TESTING**

The Materials Division will request random samples through the Resident Engineer. These random samples shall be taken from the transport trailer/railroad car and be identified by:

- Name of manufacturer/supplier/terminal/plant
- Blended portland cement type including fly ash/slag content
- Bill of lading number
- Manufacturer/Supplier bin (silo) number
- Mill test number

### **PROCEDURE AGREEMENT**

The listed manufacturers are approved to ship blended cement in accord with the attached agreement.

### **AGREEMENT FOR THE ACCEPTANCE OF BLENDED PORTLAND CEMENT BASED ON CERTIFIED MILL TESTS**

Blended portland cement will be accepted by the Arkansas Department of Transportation based on the manufacturer's/supplier's certification that the material meets all of the applicable requirements of the Department specifications:

Type 1P ( $\leq 20\%$  Pozzolan Content) (AASHTO M 240)

Type 1S ( $\leq 25\%$  Slag Content) (AASHTO M 240)

Type 1L ( $> 5\%$ ,  $\leq 15\%$  Limestone Content) (AASHTO M 240)

The amount of pozzolan allowed shall not exceed an absolute maximum amount of 20% by weight.

The amount of slag allowed shall not exceed an absolute maximum amount of 25% by weight.

The amount of limestone shall be more than 5% but shall not exceed an absolute maximum amount of 15% by weight.

## **Blended Portland Cement (Portland-Pozzolan Cement, Slag-Modified Portland Cement, Portland-Limestone Cement)**

Blended portland cement will be accepted by the Arkansas Department of Transportation under the following conditions:

- The manufacturer/supplier shall maintain a file of their test results and methods of testing. The manufacturer's laboratory shall be inspected periodically by Cement and Concrete Reference Laboratory (CCRL). Upon request, the manufacturer/supplier shall make reports of inspections available to the Department.
- Mill analyses for the blended portland cement to be certified and shipped to Department projects shall be furnished to the Department's Materials Division. Mill analyses shall include the source, amount and composition of essential constituents used in the manufacture of the finished cement as well as the composition of the blended portland cement. Mill analysis must reference the plant or origin.
- Shipments to Department projects shall be made only from bins (silos) that have been tested and found to meet Department specifications. No blended portland cement shall be shipped prior to satisfactory completion of three day compressive strength tests. Blended portland cement from different manufacturing plants will not be intermixed at terminals.
- The manufacturer/supplier shall furnish with each shipment a certification containing the following:
  - Consignee.
  - Date and time of shipment.
  - Truck or railroad car number.
  - Quantity of blended portland cement shipped.
  - Type of blended portland cement including fly ash or slag content.
  - Bin (silo) number from which shipped.
  - Statement that "This is to certify that the type of blended portland cement in this shipment is from pretested bin (silo) number \_\_\_\_\_ and complies with the AASHTO specification for the type shipped."
  - Name of modified portland cement plant.
  - Signature of responsible company official.
  - One copy of the shipment certification form for the Resident Engineer shall accompany the shipment.
- A monthly composite sample will be sent to the Materials Division. This monthly composite sample will be composed of approximately equally sized type blended portland cement samples obtained from pretested bins. A composite sample will be sent for each type of blended portland cement supplied to Department projects. Composite samples will be supplied from the manufacturing plant, not from the terminals.

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- Destination samples will also be collected as deemed necessary to assure compliance with specifications. Failure of these samples may be considered sufficient cause to reject the blended portland cement and suspend further shipments until tests by the Department determine that the manufacturer's/supplier's product is in compliance with applicable specifications and requirements.

Failure of modified portland cement to comply with the above requirements will be considered sufficient reason for removal of the product from the Qualified Products List.

No information contained in these lists is to be used for promotional purposes.